

of a computer system. It is appreciated that the present invention can operate within a number of different computer systems including general purpose computer systems, embedded computer systems, and stand alone computer systems specially adapted for controlling automatic test equipment.

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Figure 1 is a flowchart diagram illustrating steps in a process 100 for generating a pixel bar chart in accordance with an embodiment of the present invention. Steps of process 100, in the present embodiment, may be implemented with any computer languages used by those of ordinary skill in the art. In one  
10 embodiment, process 100 is for graphically presenting and visually mining large volumes of data using a graphically displayable array.

In one embodiment, the graphically displayable array is a pixel bar chart. In one embodiment, each record is represented by one unique pixel of a display. In  
15 another embodiment, each record is represented by a data point of a display, wherein the data point comprises a plurality of pixels.

At step 110 of process 100, data comprising a plurality of records is received. Each record comprises a plurality of attributes, wherein each attribute corresponds to  
20 a particular item of information of the record. For example, a consumer electronics business has a record for each order the business handles. In this example, each record may have attributes corresponding to the order number, the price of the order, the

customer identification number (ID), and the quantity of items ordered, as well as other attributes corresponding to customer data. It should be appreciated that each attribute of each record represents a value of the represented data item. As such, references to an attribute (e.g., first dividing attribute) with respect to a record are  
5 intended to refer to the corresponding value for that attribute of the record.

At step 120, a set of attributes is determined from the plurality of attributes, wherein the set of attributes is for placement of the plurality of records in the graphically displayable array. In one embodiment, a first dividing attribute, a second  
10 dividing attribute, a first ordering attribute, a second ordering attribute and a visual indicator attribute are selected.

In one embodiment, the first dividing attribute corresponds to a horizontal axis and the second dividing attribute corresponds to a vertical axis of the graphically  
15 displayable array. The first dividing attribute and second dividing attribute are for partitioning the data into groups and sub-groups. It should be appreciated that the first dividing attribute and the second dividing attribute are distinct attributes selected from the plurality of attributes. However, each of the first dividing attribute and the  
20 second dividing attribute may be the same as the first ordering attribute, the second ordering attribute and the visual indicator attribute.

In one embodiment, the first ordering attribute corresponds to a horizontal axis and the second ordering attribute corresponds to a vertical axis of the graphically displayable array. The first ordering attribute and second ordering attribute are for placing the individual records within each of the groups and sub-groups. It should be appreciated that the first ordering attribute and the second ordering attribute are distinct attributes selected from the plurality of attributes. However, each of the first dividing attribute and the second dividing attribute may be the same as the first dividing attribute, the second dividing attribute and the visual indicator attribute.

In one embodiment, the visual indicator attribute corresponds to a visual indicator. In one embodiment, the visual indicator is a color for pixel coloring. It should be appreciated that the visual indicator attribute is selected from the entire plurality of attributes. As such, the visual indicator attribute may be the same as any of the other selected attributes.

At step 130 of process 100, the plurality of records are arranged to construct the graphically displayable array for presenting said data in a format for detecting relationships between the plurality of records. In one embodiment, the present invention provides a process for placement of data for visualization of multidimensional data sets using multiple pixel bar charts in accordance with an embodiment of the present, as described in process 200 of Figure 2.